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The Claims

1. (Previously Submitted) A test fixture for use in a magnetic resonance imaging system, comprising:

a body portion having a first longitudinal axis;

a first coil supported by the body portion;

a longitudinal member connected to the body portion, the longitudinal member having a second longitudinal axis transverse to the first longitudinal axis;

a second coil supported by the longitudinal member; and

a container for containing a test substance, the container being supported by the longitudinal member adjacent to the second coil.

2. (Previously Submitted) The fixture of claim 1, wherein the first coil is wound around the body portion, perpendicular to the first longitudinal axis.

3. (Previously Submitted) The fixture of claim 2, further comprising the test substance contained by the container, the test substance being chosen from the group consisting of petroleum jelly, water, salt water and nickel chloride.

4. (Previously Submitted) The test fixture of claim 1, wherein the longitudinal member is pivotally connected to the body portion about an axis perpendicular to the first longitudinal axis of the body portion.

5. (Previously Submitted) The test fixture of claim 4, wherein the longitudinal member has a first position wherein the second longitudinal axis of the longitudinal member is parallel to the first longitudinal axis of the body portion and a second position wherein the second longitudinal axis is perpendicular to the first longitudinal axis.

6. (Previously Submitted) The test fixture of claim 1, wherein the container is within a region defined by the second coil.

7. (Previously Submitted) The test fixture of claim 1, wherein the second coil is a transceiver.

8. (Previously Submitted) The test fixture of claim 1, further comprising:

a pivotable connector connected to an end of the body portion, the pivotable connector having an axis of rotation perpendicular to the first longitudinal axis;

the pivotable connector being adapted to be connected proximate a pole of a magnetic resonance imaging magnet.

9. (Previously Submitted) The test fixture of claim 1, wherein the first coil is a receiver coil.

10. (Previously Submitted) The test fixture of claim 1, wherein:

the body portion has a recessed section; and

the first coil is wound around the recessed section.

11. (Previously Submitted) The test fixture of claim 1, further comprising electrical connections for coupling the first and second coils to circuitry external to the test fixture.

12. (Previously Submitted) The test fixture of claim 1, wherein the body portion has an adjustable length.

13. (Previously Submitted) The test fixture of claim 12, wherein the body portion comprises a telescoping section for adjusting the length of the body portion.

14. (Previously Submitted) The test fixture of claim 13, wherein:

the telescoping section comprises first and second longitudinal members; and

the second longitudinal member defines a longitudinal opening for receiving the first longitudinal member such that the second longitudinal member may be moved with respect to the first longitudinal member to vary the length of the test fixture.

15. (Previously Submitted) The test fixture of claim 1, wherein:

the body portion has an adjustable length;

the longitudinal member is pivotally connected to the boy portion; and

the test fixture has a first, undeployed position, wherein the length of the body portion is minimized and the second longitudinal axis of the longitudinal member is parallel to the first longitudinal axis of the body portion, and

second, deployed position, wherein the length of the body portion is

increased and the second longitudinal axis is transverse to the first longitudinal axis.

16. (Previously Submitted) A test fixture for use in a magnetic resonance imaging system, comprising:

a longitudinally extending body portion comprising first and second longitudinal members, the first longitudinal member defining an opening for slideably receiving the second longitudinal member;

a first coil wound around the first longitudinal member, perpendicular to a longitudinal axis of the body portion;

a third longitudinal member pivotally connected to the body portion about a pivot having an axis perpendicular to the first longitudinal axis, the third longitudinal member having a second longitudinal axis and being rotatable between a first position wherein the second

longitudinal axis is parallel to the first longitudinal axis and a second position wherein the second longitudinal axis is perpendicular to the first longitudinal axis; and

a second coil supported by the longitudinal member, the second coil being adapted to receive a container containing a test substance capable of emitting a magnetic resonance imaging signal.

17. (Previously Submitted) The test fixture of claim 16, further comprising a container received by the second coil.

18. (Previously Submitted) The test fixture of claim 17, further comprising a test substance chosen from the group consisting of petroleum jelly, water, salt water and nickel chloride.

19. (Previously Submitted) A test fixture for use in a magnetic resonance imaging system, comprising:

a body portion;

a member having a first end connected to the body portion and a second end distanced from the body portion; and

a coil supported by the member.

20. (Previously Submitted) The test fixture of claim 19, wherein the coil is supported by the member proximate the second end of the member.

21. (Previously Submitted) The test fixture of claim 20, further comprising:

a container supported by the member, proximate the coil; and

a test substance within the container, the test substance being capable of emitting a magnetic resonance signal.

22. (Previously Submitted) The test fixture of claim 21, wherein the container is within the coil.

23. (Previously Submitted) The test fixture of claim 22, wherein the test substance is chosen from the group consisting of petroleum jelly, water, salt water and nickel chloride.

24. (Previously Submitted) The test fixture of claim 23, wherein the member is pivotally connected to the body portion.

25. (Previously Submitted) The test fixture of claim 21, further comprising a second coil wound around the body portion.

26. (Previously Submitted) The test fixture of claim 25, wherein the body portion comprises first and second members, the first member defining an opening for slideably receiving at least a portion of the second member.

27. (Previously Submitted) The test fixture of claim 26, wherein the coil is wound around the first member.

28. (Previously Submitted) A test fixture for use in a magnetic resonance imaging system, comprising:

a body portion comprising a first member and a second member defining an opening for slidably receiving at least a portion of the first member, such that the first and second members may be moved with respect to each other to adjust the length of the body portion; and

a coil supported by the body portion.

29. (Previously Submitted) The test fixture of claim 28, wherein the first and second members are longitudinal members; and

the coil is wound around the first longitudinal member.

30. (Previously Submitted) The test fixture of claim 29, further comprising:

a third longitudinal member pivotally connected to the body portion; and

a second coil supported by the third longitudinal member.

31. (Previously Submitted) The test fixture of claim 30, further comprising:

a container supported by the third longitudinal member, within the second coil; and

a test substance within the container, the test substance being capable of emitting a magnetic resonance signal.

32. (Previously Submitted) A magnetic resonance imaging system, comprising:

a ferromagnetic frame;

first and second opposing poles supported by the ferromagnetic frame, the first and second poles defining first and second pole faces, respectively, the pole faces being spaced to define a gap region therebetween;

a first gradient coil plate adjacent to the first pole face;

a second gradient coil plate adjacent to the second pole face;

a first transmitter coil plate coupled to the first gradient coil plate;

a second transmitter coil plate coupled to the second gradient coil plate; and

a test fixture pivotally coupled to the first transmitter coil plate about a pivot point.

33. (Previously Submitted) The magnet resonance imaging system of claim 32, wherein the pivot point has an axis of rotation perpendicular to the first and second transmitter coil plates and the test fixture may be selectively rotated about the pivot point between a first position parallel to the transmitter coil plates and a second position perpendicular to the transmitter coil plates.

34. (Previously Submitted) The magnetic resonance imaging system of claim 33, wherein the first transmitter coil plate defines a chamber for receiving the test fixture when the test fixture is in the first position parallel to the plates, the test fixture being pivotally coupled to the transmitter coil plate, within the chamber.

35. (Previously Submitted) The magnetic resonance imaging system of claim 32, further comprising at least one test coil coupled to the fixture.

36. (Previously Submitted) The magnetic resonance imaging system of 35, comprising:

a first test coil having windings perpendicular to a longitudinal axis of the test fixture, and

a second test coil having windings parallel to the longitudinal axis of the test fixture.

37. (Previously Submitted) The magnetic resonance imaging system of claim 35, wherein the test fixture has first and second ends, the first end being pivotally coupled to the first transmitter coil plate, the system further comprising:

electrical connectors at the second end of the fixture to selectively connect the at least one coil to external circuitry; and

electrical connectors in the second transmitting coil plate to mate with the electrical connectors of the fixture.

38. (Previously Submitted) The magnetic resonance imaging system of claim 36, further comprising signal processing circuitry to process magnetic resonance signals; and

means for selectively coupling the at least one coil to signal processing circuitry.

39. (Previously Submitted) The magnetic resonance imaging system of claim 32, wherein the test fixture comprises:

a body portion; and

a coil wound around the body portion.

40. (Previously Submitted) The magnetic resonance imaging system of claim 39, wherein the test fixture further comprises:

an arm pivotally coupled to the body portion; and

a second coil supported by the arm.

41. (Previously Submitted) The magnetic resonance imaging system of claim 40, further comprising:

a container supported by the arm, proximate the second coil; and

a test substance within the container, the test substance capable of emitting a magnetic resonance signal.

42. (Previously Submitted) The magnetic resonance imaging system of claim 40, wherein:

the pole faces have a polar axis extending through a center of the pole faces, a Y axis is defined along the polar axis, and an X axis and a Z axis are defined orthogonal to the Y axis and orthogonal to each other;

the first coil is adapted to detect gradient magnetic fields generated by the gradient field coils;

the first coil is positioned on the body such that, when the test fixture is deployed, the first coil is displaced from the Y and Z axes;

the test fixture is coupled to the first transmitting coil plate such that, when the test fixture is deployed, the second coil is displaced from the X axis; and

the second coil is positioned at the intersection of the X, Y, and Z planes when the test fixture is deployed.

43. (Previously Submitted) The magnetic resonance imaging system of claim 32, wherein the test fixture comprises a telescoping section for adjusting the length of the main body.

44. (Previously Submitted) The magnetic resonance imaging system of claim 43, wherein the telescoping section comprises a first longitudinal member and a second longitudinal member having an opening for receiving the first longitudinal member, such that the first and second longitudinal members may be moved with respect to each other to vary the length of the test fixture.

45. (Previously Submitted) A magnetic resonance imaging system comprising:

a ferromagnetic frame supporting first and second opposing poles defining a gap region therebetween;

a test fixture pivotally coupled to one of the poles; and

at least one coil supported by the test fixture.

46. (Previously Submitted) The magnetic resonance imaging system of claim 45, wherein the test fixture comprises:

first and second coils;

a body portion supporting the first coil; and

an arm connected to the body portion at a transverse angle, the arm supporting the second coil.

47. (Previously Submitted) The magnetic resonance imaging system of claim 46, whereby the arm is movable between a first position parallel to the body portion and a second position transverse to the body part, wherein the arm is pivotally connected to the body portion.

48. (Previously Submitted) The magnetic resonance imaging system of claim 47, wherein the test fixture comprises a telescoping section.

49. (Previously Submitted) The magnetic resonance imaging system of claim 46, wherein the body portion comprises first and second members, the first member having an opening and the second member being slideably received in the opening.

50. (Previously Submitted) The magnetic resonance imaging system of claim 46, further comprising:

digital signal processing circuitry;

analog signal processing circuitry electrically connected to the digital signal processing circuitry;

first means for selectively electrically coupling the first coil to the analog signal processing circuitry; and

second means for selectively electrically coupling the second coil to the digital signal processing circuitry.

51. (Previously Submitted) The magnetic resonance imaging system of claim 45, further comprising:

a first gradient coil plate adjacent to the first pole;

a second gradient coil plate adjacent to the second pole;

a first transmitter coil plate coupled to the first gradient coil plate; and

a second transmitter coil plate coupled to the second gradient coil plate;

wherein the test fixture is pivotally connected to the transmitting coil plate.

52. (Previously Submitted) A magnetic resonance imaging system comprising:

a magnetic resonance imaging assembly defining a gap region; and

a test fixture pivotally connected to the assembly within the gap region.

53. (Previously Submitted) A method for testing characteristics of a magnetic resonance imaging system having a gap region with a test fixture pivotally coupled to the system within the gap region, the method comprising:

deploying the test fixture from a first, undeployed position within the gap region to a second, deployed position within the gap region; and

conducting a test procedure.

54. (Previously Submitted) The method of claim 53, wherein the test fixture has a first, undeployed length and a second, deployed length, the method comprising:

deploying the test fixture by:

rotating the test fixture about the pivot; and

extending the test fixture from the first, undeployed length to the second, deployed length.

55. (Previously Submitted) The method of claim 54, wherein:

the test fixture comprises a body portion with a first axis and an arm with a second axis, the arm being pivotally connected to the body portion, the arm having a first, undeployed position wherein the second axis is parallel to the first axis and a second, deployed position wherein the second axis is transverse to the first axis, the method further comprising;

deploying the test fixture by rotating the arm from the first undeployed position to the second, deployed position.

56. (Previously Submitted) The method of claim 53, wherein:

the system defines a chamber within the gap region,

the fixture is pivotally coupled to the system within the chamber, the test fixture is within the chamber in the first, undeployed position, and

a portion of the test fixture extends out of the chamber in the second, deployed position;

the method comprising:

deploying the test fixture by rotating the test fixture so that a portion of the test fixture extends out of the chamber.

57. (Previously Submitted) The method of claim 53, wherein the test fixture comprises at least one coil, the method comprising:

detecting an electromagnetic signal within the gap region by the at least one coil.

58. (Previously Submitted) The method of claim 57, comprising detecting gradient magnetic fields in the gap region.

59. (Previously Submitted) The method of claim 57, further comprising:

supporting a test substance by the test fixture adjacent to the at least one coil, the test substance capable of emitting a magnetic resonance signal;

exciting the test substance with a radio frequency signal at a Larmor frequency of the test substance; and

detecting a magnetic resonance signal emitted by the test substance by the coil.

60. (Previously Submitted) The method of claim 59, wherein the coil is a transceiver, the method comprising:

emitting the radio frequency signal by the transceiver; and

detecting the magnetic resonance signal by the transceiver.

61. (Previously Submitted) The method of claim 59, further comprising monitoring the magnetic resonance imaging signal over time.

62. (New) A magnetic resonance imaging system comprising:

a magnetic resonance imaging assembly defining a gap region; and

a test fixture coupled to the assembly, the test fixture comprising:

a body portion having a first longitudinal axis;

a first coil supported by the body portion;

a longitudinal member connected to the body portion, the longitudinal member having a second longitudinal axis transverse to the first longitudinal axis;

a second coil supported by the longitudinal member; and

a container containing a test substance, the container being supported by the longitudinal member adjacent to the second coil.

63. (New) The MRI system of claim 62, wherein the test fixture is pivotally coupled to the assembly.

64. (New) The MRI system of claim 61, wherein the body portion has a telescoping section for adjusting the length of the body portion.